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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,834	09/26/2001	Dittmar Klett	10191/2011	2609

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EXAMINER

ZIMMERMAN, GLENN

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 04/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/964,834	Applicant(s) KLETT ET AL.	
	Examiner Glenn Zimmerman	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 16-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____. | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 1-15 group I in Paper No. 5 is acknowledged.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "10" has been used to designate both an insulator and a compact spark plug. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "10c" has been used to designate both an insulator and compact spark plug. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 106. A proposed drawing correction or corrected drawings are required in

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reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 8-13 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Koerber U.S. Patent 1,485,275.

Regarding claim 1, Koerber discloses a spark plug (**Fig. 1**), comprising: a partially cylindrical insulator element (**insulating body ref. 1; expanded portion ref. 3**); a housing (**plug body ref. 6**) enclosing the partially cylindrical insulator element; and a connection (**metal socket ref. 4 and/or screw cap ref. 7**) including at least one of at least one material bond and a friction lock connection aligned in a radial direction and by which the partially cylindrical insulator element and the housing are connected to one another (**col. 2 lines 70-77**).

Regarding claim 2, Koerber disclose the spark plug according to claim 1, wherein: the partially cylindrical insulator element includes a base part, and a diameter further from a combustion chamber of the partially cylindrical insulator element at least one of remains approximately equal and increases with an increasing distance

(**insulating body bottom Fig. 1 ref. 1**) from a free end of the base part in an entire region surrounded by the housing.

Regarding claim 3, Koerber discloses the spark plug according to claim 1, wherein the partially cylindrical insulator element includes a base part (**insulating body and bottom Fig. 1 ref. 1**), and an inner diameter of the housing in a region of the connection at least one of remains the same and increases with an increasing distance from a free end of the base part (**Fig. 1**).

Regarding claim 8, Koerber discloses the spark plug according to claim 1, wherein the housing includes at least one tubular section (**screw cap reference 7 or metal socket reference 4**), and a diameter of the partially cylindrical insulator element is slightly larger than an inner diameter of the housing, when the partially cylindrical insulator element is not in place, at the same distance to a free end of a base part of the partially cylindrical insulator element (**Fig. 1**).

Regarding claim 9, Koerber discloses the friction-lock connection (**ref. 7 and 5; col. 2 lines 88-95 and 109**) is produced by an installation of the partially cylindrical insulator element into the housing, the housing having a higher temperature than the partially cylindrical insulator element at a time of the installation.

As to limitation produced by an installation of the partially cylindrical insulator element into the housing, the housing having a higher temperature than the partially cylindrical insulator element at a time of the installation in claim 9, it is the process step incorporated into which renders the claim as a product-by-process.

The courts have been holding that: “-In spite of the fact that a product-by-process claim may recite only process limitation, it is the product which is covered by the claim and not the recited process steps- - . (In re Hughes, 182 USPQ 106) - -“. Also - - Patentability of a claim to a product does not rest merely on a difference in the method by which that product is made. Rather, it is the product itself which must be new and unobvious. (In re Pilkington, 162 USPQ 147) - -.” Accordingly, “- - a rejection based on 35 U.S. C. section 102 or alternatively on 35 U.S. C. section 103 of the statute is eminently fair and acceptable.” (In re Brown and Saffer, 173 USPQ 685 and 688). - - The determination of the patentability of product-by-process claim is based on the product itself rather than on the process by which the product is made- -. In re Thrope, 777 F. 2d 695, 227 USPQ 964 (Fed. Cir. 1985).

As such, no patentable weight is given to process steps recited in claim 9.

Regarding claim 10, Koerber discloses the spark plug according to claim 1, further comprising an interlayer (**metal socket reference 4 and/or screw cap reference 7**) produced prior to the connection and by which the partially cylindrical insulator element and the housing are connected with one another (**Fig. 1**), wherein:

The interlayer is one of applied and attached to the partially cylindrical insulator element (**Fig. 2**), and the interlayer is attached to the housing using at least one of the at least one material bond and the friction-lock connection (**col. 2 lines 70-77;Fig. 1**).

Regarding claim 11, Koerber discloses the spark plug according to claim 10, wherein the interlayer extends into regions outside the connection (**metal socket top beyond ref. 5 Fig. 2 ref. 4**).

Regarding claim 12, Koerber discloses the spark plug according to claim 10, wherein a gap (**gap located at bottom of reference 7 Fig. 1 no ref. #**) is located between the housing and the interlayer in a region of a section lying closer to a base part of the partially cylindrical insulator element, and the interlayer is connected to the housing in a second section further away from the base part.

Regarding claim 13, Koerber discloses the spark plug according to claim 12, wherein another gap (**weakened point Figs. 2 and 3 reference 9**) is located between the partially cylindrical insulator element and the interlayer in a region of a third section of the interlayer further away from the base part.

Regarding claim 15, Koerber discloses the spark plug according to claim 1, wherein: the connection forms at least a significant portion of a cohesion of the housing and the partially cylindrical insulator element (**ref. 4 and 7**) .

Claims 1-4 is rejected under 35 U.S.C. 102(b) as being anticipated by Powell U.S. Patent 1,501,368.

Regarding claims 1-3, Powell discloses a spark plug (**Fig. 1;title**), comprising: a partially cylindrical insulator element (**non-conducting sleeve ref. 2**); a housing (**body portion ref. 1**) enclosing the partially cylindrical insulator element; and a connection (**gasket ref. 6**) including at least one of at least one material bond and a friction lock connection aligned in a radial direction and by which the partially cylindrical insulator element and the housing are connected to one another (**Fig. 1**).

Regarding claim 4, Powell discloses a spark plug according to claim 1, wherein: the partially cylindrical insulator element includes a base part (**ref. 2 low r part of**

sleeve), and a diameter (**ref. 2a**) of the partially cylindrical insulator element in a region on a side further from the base part adjoining a region surrounded by the housing is approximately equal to a largest diameter of the partially cylindrical insulator element in a region surrounded by the housing.

Claims 1-8, 10 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Fisher U.S. Patent 3,300,672.

Regarding claim 1, Fisher discloses a spark plug (**Fig. 1;title**), comprising: a partially cylindrical insulator element (**insulator Figs. 1 and 2 ref. 13**); a housing (**tubular shell ref. 1**) enclosing the partially cylindrical insulator element; and a connection (**suitable spark plug cement ref. 24**) including at least one of at least one material bond and a friction lock connection aligned in a radial direction and by which the partially cylindrical insulator element and the housing are connected to one another (**Fig. 1**).

Regarding claim 2, Fisher discloses the spark plug according to claim 1, wherein: the partially cylindrical insulator element includes a base part (**ref. 15, 20, 17, 18 and 19**), and a diameter further from a combustion chamber of the partially cylindrical insulator element at least one of remains approximately equal and increases with an increasing distance (**Fig 1; col. 2 lines 3-11**) from a free end of the base part in an entire region surrounded by the housing.

Regarding claim 3, Fisher discloses the spark plug according to claim 1, wherein the partially cylindrical insulator element includes a base part (**ref. 15, 20, 17, 18 and 19**), and an inner diameter of the housing in a region of the connection at least one of

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remains the same and increases with an increasing distance from a free end of the base part (**Fig. 1**).

Regarding claim 4, Fisher discloses a spark plug according to claim 1, wherein: the partially cylindrical insulator element includes a base part (**ref. 15, 20, 17, 18 and 19**), and a diameter (**elongated portion ref. 21**) of the partially cylindrical insulator element in a region on a side further from the base part adjoining a region surrounded by the housing is approximately equal to a largest diameter of the partially cylindrical insulator element in a region surrounded by the housing (**ref. 14 and 21**).

Regarding claim 5, Fisher discloses the spark plug according to claim 1, wherein the partially cylindrical insulator element includes a base part (**ref. 15, 20, 17, 18 and 19**), the housing includes at least one tubular section (**tubular shell ref. 1**) in which a diameter of the partially cylindrical insulator element is only slightly smaller than an inner diameter of the housing at the same distance to a free end of the base part (**Fig. 1**), and a connection along a circumference of the partially cylindrical insulator element closes a gap between the partially cylindrical insulator element and the housing (**suitable spark plug cement ref. 24**) .

Regarding claim 6, Fisher discloses the spark plug according to claim 5, further comprising at least one of: a first tubular (**bore ref. 11**) section arranged near a free end of the base part; and a second tubular section (**bore ref. 8 or 9**) arranged further away from the base part.

Regarding claim 7, Fisher discloses the spark plug according to claim 1, wherein the connection includes at least one of a soldered connection, a welded connection and an adhesive connection (**suitable spark plug cement ref. 24**).

Regarding claim 8, Fisher discloses the spark plug according to claim 1, wherein: the housing includes at least one tubular section (**tubular shell ref. 1**), and a diameter of the partially cylindrical insulator element (**larger diameter portion ref. 14**) is slightly larger than an inner diameter of the housing (**bore ref. 9 or 11**), when the partially cylindrical insulator element is not in place, at the same distance to a free end of a base part of the partially cylindrical insulator element.

Regarding claim 10, Fisher discloses the spark plug according to claim 1, further comprising an interlayer (**suitable spark plug cement ref. 24**) produced prior to the connection and by which the partially cylindrical insulator element and the housing are connected with one another, wherein:

The interlayer is one of applied and attached to the partially cylindrical insulator element (**tubular insulator ref. 13**), and the interlayer is attached to the housing using at least one of the at least one material bond and the friction-lock connection (**cement ref. 24**).

Regarding claim 15, Fisher discloses the spark plug according to claim 1, wherein the connection forms at least a significant portion of a cohesion of the housing and the partially cylindrical insulator element (**spark plug cement ref. 24**). The examiner notes that the cement covers three different surfaces of the shell and three different surfaces of the tubular insulator, which is a significant portion for cohesion.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher U.S. Patent 3,300,672 in view of Benedikt et al. U.S. Patent 4,870,319.

Regarding claim 14, Fisher teaches all the limitations of claim 14, but fails to teach a ceramic insulator. Benedikt et al. in the analogous art teach a ceramic insulator **(col. 3 line 12)**. Additionally, Benedikt et al. teaches incorporation of such a ceramic insulator to improve insulation ability, provide a plug insulating body or insulator and allow for the use of only thin layers **(col. 2 lines 10-12; col. 3 lines 33-47)**.

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a ceramic insulator in the spark plug of Fisher since such a modification would improve insulation ability, provide a plug insulating body or insulator and allow for thin layers as taught by Benedikt et al.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Klett et al. U.S. Patent Application Publication disclose a Spark Plug Having A Central Electrode Which Is Welded or Soldered on And Method For its Production. Below U.S. Patent 5,918,571 disclose a Dual Electrode High Thread Spark Plug. Strumbos U.S. Patent 4,810,929 disclose a Spark Plug Temperature Control. Oh U.S. Patent 6,097,136 disclose a Spark Plug For Having Slidably Wiping Device For Cleaning Carbon Deposits. Benedikt et al. U.S. Patent 5,731,654 disclose a Spark Plug Having a Creepage Spark Gap. Fox U.S. Patent 1,691,760 disclose a Spark Plug.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenn Zimmerman whose telephone number is (703) 308-8991. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (703) 305-4794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is n/a.


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Glenn Zimmerman

April 7, 2003


ASHOK PATEL
PRIMARY EXAMINER